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APPLICATION NO.	FILING DATE	FIRST-NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,889	09/19/2003	Daniel J. Gregoire	HRL025-DIV	6992
28848	7590	03/24/2006	EXAMINER	
TOPE-MCKAY & ASSOCIATES 23852 PACIFIC COAST HIGHWAY #311 MALIBU, CA 90265			BUEKER, RICHARD R	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,889

Applicant(s)

GREGOIRE ET AL.

Examiner

Richard Bueker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

The misnumbered claims that were presented in applicants' amendment filed on Jan. 3, 2006 have been renumbered as follows: newly added claim 2 has been renumbered as claim 15. The claims that were Newly added claim 9 has been renumbered as claim 16. Misnumbered claims 3-8 have been renumbered as claims 2-7 (i.e. they have been returned to their original numbering). Misnumbered claims 10-16 have been renumbered as claims 8-14. The dependency of correctly renumbered 2-6 and 8-14 have been changed to reflect the corrected numbering. For example, correctly numbered claim 2 is now dependent on claim 15, correctly renumbered claim 3 is dependent on claim 2, correctly renumbered claim 8 is dependent on claim 16, and correctly renumbered claim 9 is dependent on claim 8. Please note that these changes as describe above have already been made to the official record. Applicants do not need to file any amendments in this regard. In all future correspondence, applicants should use the corrected claim numbering.

Claims 2-6 and 8-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

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had possession of the claimed invention. In newly added claims 15 and 16, the phrase "wherein the container is positioned in the path of the oxygen plasma" does not appear to be supported by the specification as originally filed.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-8 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung I (5,198,677) taken in view of Kaufman (4,481,062) and Leung II (5,587,226). Leung I (5,198,677) discloses an ion source (Fig. 1) including a plasma generating chamber, magnets arranged around the chamber, a tungsten filament that is heated by a filament power source, a gas port, a bias DC power source, and an array of magnets at the exit of the chamber that act as a magnetic filter of the type claimed by applicants. Leung I teaches that his magnetic filter design desirably produces a stream of mainly atomic ions. Leung's ion source also includes a cooling channel formed between a plasma generation chamber and a cylindrical wall for cooling magnets in the channel; and a liner made of a high-temperature resistant material such as molybdenum provided within the chamber (column 3, line 10 through column 4, line 10). Leung I uses a DC power source 58 to heat the tungsten filament and does not discuss the use of an AC power source to heat his tungsten filament. Also, Leung I does not discuss using his ion source to generate atomic oxygen ions. Kaufman (see Fig. 1 and col. 5, lines 1-6) teaches that either an AC or DC power source can be used to heat a tungsten

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filament to thermionic temperatures. It would have been prima facie obvious to one skilled in the art to modify the ion source of Leung I (5,198,677) by substituting an AC power source for Leung's DC power source 58, because Kaufman teaches that an AC power source was known to be a functional equivalent power source for heating a tungsten filament to thermionic temperatures. Regarding the production of atomic oxygen ions, Leung II (5,587,226) teaches (see the entire patent and in particular col. 13, lines 7-29 and col. 15, lines 13-41) that it is desirable to produce a stream of atomic oxygen ions for materials processing, and Leung II (5,587,226) also teaches that a magnetic filter of the type used by Leung I will produce such a stream of atomic oxygen ions. Therefore, it would have been obvious to one skilled in the art to use the atomic ion source of Leung I (5,198,677) to produce the desired atomic oxygen ions by providing the Lueng I ion source with a source of oxygen as presently claimed. Leung II also teaches (see col. 15, lines 15-41) that his antenna ion source is more desirable for oxygen ion production than a DC discharge ion source of the type disclosed by Leung I. It is noted, however, that a non-preferred embodiment disclosed in the prior art can properly be used as a prior art teaching. The use of a non-preferred embodiment would have been obvious to one willing to accept the drawbacks taught. See In re Boe, 148 USPQ 507; In re Mills, 176 USPQ 196 and In re Susi 169 USPQ 423.

Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung I (5,198,677) taken in view of Kaufman (4,481,062) and Leung II (5,587,226) for the reasons stated in the rejection of claim 1 above, and taken in further view of Anderson (US Patent No. 5,365,070). Anderson teaches an ion source 10 (Fig. 1)

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including a magnetic holding metal member 12 made of carbon steel which has high magnetic permeability so that magnetic field can easily penetrate there through (column 5, line 47 through column 6, line 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize carbon steel in the construction of chamber having magnets there around so that magnetic field more efficiently penetrate there through.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leung I (5,198,677) taken in view of Kaufman (4,481,062) and Leung II (5,587,226) for the reasons stated in the rejection of claim 1 above, and taken in further view of Mantei (US Patent No. 4,483,737). Mantei teaches a plasma chamber 10 (Figs. 1, 2) including a filament 21 therein and having a plurality of magnets 14 surrounding the chamber wherein the plasma chamber 10 is made of a nonmagnetic material such as stainless steel (column 4, lines 29-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize nonmagnetic stainless steel as a suitable material for a plasma chamber such as in Leung I.

Applicants' arguments have been considered but are not directed to the new grounds of rejection.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parvis Hassanzadeh can be reached on (571) 272-1435. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Richard Bueker
Primary Examiner
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